IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Carl Christensen, et al.

Examiner: Matthew D. Spittle

Serial No: 10/568,046

Group Art Unit: 2111

Filed: February 10, 2006

Docket: PU030244 (156-113)

For: CHANGEABLE FUNCTIONALITY IN A BROADCAST ROUTER

Mail Stop Appeal Brief-Patents
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Applicants appeal the status of Claims 1-25 as presented in response to the non-final Office Action dated September 23, 2008 and rejected in the final Office Action dated May 7, 2009, pursuant to the Notice of Appeal filed on October 19, 2009 and submit this appeal brief.

CUSTOMER NO.: 24498
Serial No.: 10/568,046
Non-final Office Action Dated: September 23, 2008
Final Office Action Dated: May 7, 2009

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1. **Real Party in Interest**

The real party in interest is THOMSON LICENSING S.A., the assignee of the entire right title and interest in and to the subject application by virtue of an assignment recorded with the Patent Office on **[TBD]** at reel/frame **[TBD]**.

2. **Related Appeals and Interferences**

None

3. **Status of Claims**

Claims 1-25 are pending. Claims 1-25 stand rejected and are under appeal. No claims have been cancelled or withdrawn.

A copy of Claims 1-25 is presented in Section 8 below.

4. **Status of Amendments**

An Amendment under 37 CFR §1.111, filed with the PTO on March 27, 2009 in response to a non-final Office Action dated September 23, 2008, was entered. No responses/amendments were filed subsequent to the above Amendment filed on September 23, 2008. A final Office Action dated May 7, 2009, to which this appeal brief is directed, is currently pending.

5. **Summary of Claimed Subject Matter**

Independent Claim 1 is directed to "[a] broadcast router" (Claim 1, preamble).

"[A] plurality of input cards for inputting data into the broadcast router" is described, e.g., at: pg. 2, lines 8-11; and pg. 6, line 23 – pg. 7, line 9. Moreover, the subject matter of this element involves, e.g.: item 410 of FIGS. 1 and 2.

"[A] plurality of output cards for outputting the data from the broadcast router" is described, e.g., at: pg. 2, lines 11-12; and pg. 7, lines 13-20. Moreover, the subject matter of this element involves, e.g.: item 460 of FIGS. 1 and 2.

"[A]t least one programmable device" is described, e.g., at: pg. 2, lines 14-16; and pg. 7, line 24 – pg. 8, line 16. Moreover, the subject matter of this element involves, e.g.: item 466 of FIG. 1.

"[A] configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions" is described, e.g., at: pg. 2, lines 12-14; and pg. 7, line 21 – pg. 9, line 13. Moreover, the subject matter of this element involves, e.g.: items 466 and 498 of FIG. 1.

"[W]herein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router" is described, e.g., at: pg. 2, lines 14-18; and pg. 4, line 19 – pg. 5, line 12. Moreover, the subject matter of this element involves, e.g.: item 498 of FIGS. 1 and 2.

Independent Claim 14 is directed to "[a] method for changing a functionality of a broadcast router, the broadcast router at least having a plurality of input cards, a plurality of outputs cards, and at least one programmable device" (Claim 14, preamble).

"[P]roviding a replaceable configuration control card for insertion into the broadcast router and for storing configuration information for configuring the at least one programmable device to perform a first set of functions" is described, e.g., at: pg. 2, lines 21-24; pg. 4, line 19 – pg. 5, line 12; pg. 6, line 23 – pg. 7, line 9; and pg. 12, lines 7-19. Moreover, the subject matter of this element involves, e.g.: items 466 and 498 of FIG. 1; and items 310, 320 and 330 of FIG. 3.

"[W]herein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router" is described, e.g., at: pg. 2, line 25 – pg. 3, line 4; pg. 4, line 19 – pg. 5, line 25; and pg. 12, line 20 – pg. 13, line 2. Moreover, the subject matter of this element involves, e.g.: items 466 and 498 of FIG. 1; and items 340 and 350 of FIG. 3.

Independent Claim 19 is directed to "[a] broadcast router" (Claim 19, preamble).

"[A] plurality of input cards for receiving data into the broadcast router" is described, e.g., at: pg. 2, lines 8-11; and pg. 6, line 23 – pg. 7, line 9. Moreover, the subject matter of this element involves, e.g.: item 410 of FIGS. 1 and 2.

"[A]n expansion card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router" is described, e.g., at: pg. 3, lines 5-10; and pg. 7, lines 7-12. Moreover, the subject matter of this element involves, e.g.: item 415 of FIG. 1; and item 287 of FIG. 2.

"[A] matrix card for receiving the data from the plurality of input cards for subsequent

routing within the broadcast router" is described, e.g., at: pg. 3, lines 10-12; and pg. 7, lines 15-16. Moreover, the subject matter of this element involves, e.g.: item 465 of FIG. 1; and item 287 of FIG. 2.

"[A] plurality of output cards for receiving the data from the matrix card and for outputting the data from the broadcast router" is described, e.g., at: pg. 3, lines 12-13; and pg. 7, lines 17-20. Moreover, the subject matter of this element involves, e.g.: item 460 of FIGS. 1 and 2.

"[A]t least one programmable device" is described, e.g., at: pg. 2, lines 14-16; and pg. 7, line 24 – pg. 8, line 16. Moreover, the subject matter of this element involves, e.g.: item 466 of FIG. 1.

"[A] configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions" is described, e.g., at: pg. 2, lines 12-14; and pg. 7, line 21 – pg. 9, line 13. Moreover, the subject matter of this element involves, e.g.: items 466 and 498 of FIG. 1.

"[W]herein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router" is described, e.g., at: pg. 2, line 25 – pg. 3, line 4; pg. 4, line 19 – pg. 5, line 25; and pg. 12, line 20 – pg. 13, line 2. Moreover, the subject matter of this element involves, e.g.: items 466 and 498 of FIG. 1; and items 340 and 350 of FIG. 3.

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6. **Grounds of Rejection to be Reviewed on Appeal**

Claims 1-11, 13-17 and 19-25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,254,112 to Cornet et al. (hereinafter "Cornet") in view of U.S. Patent No. 5,625,780 to Hsieh et al. (hereinafter "Hsieh") and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. (hereinafter "Notarianni") and U.S. Patent No. 6,539,534 to Bennett (hereinafter "Bennett"). Claims 12, 18 and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cornet in view of Hsieh, U.S. Patent No. 4,764,959 to Wantanabe et al. (hereinafter "Wantanabe"), and what is old and well known in the art as evidenced by Notarianni and Bennett.

The preceding rejections under 35 U.S.C. §103(a) are presented for review in this Appeal with respect to Claims 1-25, as argued with respect to independent Claims 1, 14, and 19.

Regarding the grouping of the claims, Claims 2-13 stand or fall with Claim 1, Claims 15-18 stand or fall with Claim 14, and Claims 20-25 stand or fall with Claim 19, due to their respective dependencies.

7. **Argument**

A. Introduction

In general, a broadcast router allows each one of a plurality of outputs there from to be assigned a signal from any one of a plurality of inputs thereto. However, broadcast routers can be equipped with additional functionalities and may be comprised of different hardware configurations. The price of a router can vary greatly depending upon the level of functionality and hardware configuration of a particular router.

Conventional methods of upgrading routers are inadequate. Upgrades to broadcast routers are typically implemented by replacing one or more of the main components of the router, or, alternatively, by downloading new software to the router. However, replacing the main components of a router is costly, and the process of downloading new software is considered a reliability risk.

Advantageously, the present invention allows a broadcast router to provide different configurations or levels of operational sophistication in a cost efficient and reliable manner while using common hardware arrangements. More particularly, the present invention provides "[a] broadcast router" (Claims 1 and 19) and "[a] method for changing a functionality of a broadcast router" (Claims 14) which provide a number of advantages over the prior art and dispense with the problems that plague prior art systems.

In addition, the claims of the pending invention include novel features not shown in the cited references and that have already been pointed out to the Examiner. Thus, it is respectfully asserted that independent Claims 1, 14 and 19 are each patentably distinct and non-obvious over the cited references in their own right. For example, the below-identified elements of independent Claims 1, 14 and 19 are not shown in the cited references, taken either singly or in any combination. Moreover, these claims are distinct from each other in that they are directed to different implementations and/or include different elements. For example, Claims 1 and 19 are directed to a broadcast router, while Claim 14 is directed to a method for changing a functionality of a broadcast router. Moreover, the broadcast router recited in Claims 1 and 19, along with the method set forth in Claim 14, each include different elements from each other and they need to be considered separately. Accordingly, each of independent Claims 1, 14 and 19

represent separate features/implementations of the invention that are separately novel and non-obvious with respect to the prior art and to the other claims. As such, independent Claims 1, 14 and 19 are separately patentable and are each presented for review in this appeal.

B. Whether Claims 1-11, 13-17 and 19-25 are Rendered Obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al. and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. and U.S. Patent No. 6,539,534 to Bennett

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir.

1988)).

The Examiner rejected Claims 1-11, 13-17 and 19-25 as being obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al. and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. and U.S. Patent No. 6,539,534 to Bennett. The Examiner contends that the cited combination shows all of the elements recited in Claims 1-11, 13-17 and 19-25.

Cornet relates to a system for reassembling packets in a network element (Cornet: Title; Abstrat). When a traffic flow is received by the network element, the ingress cards segments the traffic flow into internal cells for switching or routing in the network element (Cornet: col. 4, lines 45-47). The ingress cards also add an additional internal header to each cell to provide addressing information for each cell as it traverses the network element (Cornet: col. 5, lines 9-14). The traffic flow is then sent from the ingress card to the fabric component which uses the internal header information to control the routing of the traffic flow in the network element (Cornet: col. 5, lines 23-29). Based on the internal header information, the traffic flow is sent to one of the egress cards which then reassembles the internal cells and prepares the traffic for transmission (Cornet: col. 5, lines 43-61).

Hsieh discloses a backplane for interconnecting printed circuit boards (Hsieh: col. 1, lines 17-20). The backplane includes a motherboard which includes a plurality of slots for mounting printed circuit boards (Hsieh: col. 5, lines 9-16), at least one field programmable interconnect device (FPID) for routing signals between the printed circuit boards (Hsieh: col. 5, lines 16-18), and a read-only memory (ROM) which stores programming data for controlling the FPID

(Hsieh: col. 5, lines 63-65). On system startup, the programming data is read out of the ROM and transmitted to the control interface circuit in the FPID, which then uses the programming data to route signals in a manner indicated by the programming data (Hsieh: col. 5, line 63 – col. 6, line 7). Moreover, Hsieh explains that the manner in which signals are routed can be changed by replacing or reprogramming the ROM, such that the programming data stored therein indicates a different signal routing pattern (Hsieh: col. 6, lines 18-21).

It will be shown herein below that Claims 1, 14 and 19 are not shown in the cited taught or suggested by the combination of Cornet and Hsieh, and that Claims 1, 14 and 19 should be allowed, including the claims dependent there from as identified in Section 6 herein.

B1. Claims 1-11, 13-17 and 19-25

Initially, it is respectfully pointed out to the Examiner that Claims 2-11 and 13 directly or indirectly depend from independent Claim 1, Claims 15-17 directly or indirectly depend from independent Claim 14, and Claims 20-25 directly or indirectly depend from independent Claim 19. Thus, Claims 2-11 and 13 include all the elements of Claim 1, Claims 15-17 include all the elements of Claim 14, and Claims 20-25 include all the limitations of Claim 19.

In the rejection of Claims 1, 14 and 19, the Examiner has acknowledged that Cornet fails to teach the "at least one programmable device" set forth in these claims, but relies on Hsieh as teaching this feature (see pg. 3 of the Final Office dated May 7, 2009). The Examiner further contends that it would have been obvious to one of ordinary skill in the art to incorporate the programmable device of Hsieh into the system of Cornet. Applicants respectfully submit that

such would not be obvious to one of ordinary skill in the art for at least the reason that Cornet teaches away from the incorporation a programmable device.

MPEP § 2141.02(VI) states that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." Moreover, the Federal Circuit has explained that "[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant" (*In re Fulton*, 391 F.3d 1195 (Fed. Cir. 2004)). Accordingly, where cited art teaches away from a claimed feature, or leads one of ordinary skill in a different direction that that taken by the Applicant, the cited art is not available for the purposes of an obviousness rejection.

In the present case, Cornet not only fails to teach or suggest a programmable device, but in fact teaches away from the use of a programmable device. In general, the present invention allows the functionality of a router to be altered by including a programmable device in the router which can be configured in accordance with control information stored a replaceable control card. Hence, by replacing the configuration control card which contains the configuration control information, the functionality of a router can be changed.

On the other hand, Cornet teaches that the functionality of the network element described therein can be changed by adding internal headers to the data flowing through the network element. As explained in Cornet, internal headers are added to the traffic flow uupon entry of the traffic flow into the network element (Cornet, col. 5, lines 9-19). The internal header information is then used by fabric component to control the functionality of the network element by switching or routing the traffic flow in accordance with the header information (Cornet, col.

5, lines 20-29). Thus, rather than incorporating a programmable device which can be configured in accordance with control information on a replaceable card, Cornet teaches that the functionality of the network element can be altered by adding internal headers to the data flowing through the network element. Given such, this reference teaches away from the incorporation of a programmable network device. Because Cornet teaches away from the incorporation of a programmable device, it would not be obvious to one of ordinary skill in the art to modify Cornet to incorporate the features of Hsieh in order to arrive at the claimed invention. Rather, one of ordinary skill would be led down a different path which suggests controlling the functionality of a network element by adding internal headers to the data flowing through the network element. Accordingly, it is respectfully submitted that the present rejection is improper for at least this reason.

The present rejection is also believed improper because the modification of Cornet with the teachings of Hsieh would render Cornet unsatisfactory for its intended purpose. Pursuant to MPEP § 2143.01(V), "[i]f [a] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification" *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Cornet explains that a primary goal of the system described therein is to provide a "network element that reduces the resources required to reassemble packets and enable efficient processing of certain traffic flows" (Cornet, col. 1, lines 47-51). However, if the programmable FPID and ROM of Hsieh are incorporated into the network element of Cornet, the resulting device would produce a result which is contrary to both of these objectives. More particularly,

the incorporation of Hsieh's programmable FPID into Cornet's network element would require several pieces of hardware to be added to the network element in Cornet. For example, a programmable device would have to be integrated into the network element, along with a configuration control card which stores information for configuring the programmable device. Since the modification of Cornet with Hsieh requires the inclusion of these additional components, this defeats Cornet's goal of providing a "network element that reduces the resources required to reassemble packets".

Moreover, the modification of Cornet with Hsieh further defeats Cornet's goal of enabling the efficient processing of traffic flows. That is, since the fabric in Cornet relies solely on the header information in the received data to control the traffic flowing through the fabric, the addition of an external configuration control card and one or more programmable devices to control the traffic flow would clearly increase the processing time associated with routing information through the fabric. For example, in addition to normal processing associated with routing traffic, the fabric would also have to read in and process the configuration information stored on the configuration control card and configure the fabric in accordance the configuration information. Accordingly, it is believed the present rejection is improper because the modification of Cornet with the teachings of Hsieh would render Cornet unsatisfactory for its intended purpose.

Even further, the present rejection is also improper in view of MPEP § 2143.01(VI) which explains, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious" (*In re Ratti*, 270 F.2d 810,

123 USPQ 349 (CCPA 1959)). A finding that the principle of operation of a prior art invention has been changed is appropriate when the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate" (see MPEP § 2143.01(VI), quoting *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959)).

The modification of Cornet with the programmable FPID in Hsieh would require a complete redesign of the invention in Cornet and would change the basic principle under which Cornet's invention was designed. As discussed briefly above, in order to modify Cornet with Hsieh, several pieces of hardware would have to be added to the network element of Cornet. For example, a programmable device would have to be integrated into the fabric component, or the fabric component would have to be completely replaced with the programmable FPID in Hsieh. It would also be necessary to incorporate a configuration control card which stores the information that is used to configure the programmable device. Even further, Cornet would also have to be modified to include a means for communicating the configuration information on the control card to the programmable device. Thus, in order to combine features taught by Hsieh into the network element of Cornet, the network element would require substantial reconstruction and redesign, and would change the basic principle under which Cornet was designed to operate. For at least this reason, the present rejection is believed improper.

In light of the discussion provided above, the combination of Cornet and Hsieh is believed to be improper. However, assuming, arguendo, that that the cited combination of Cornet and Hsieh is somehow found to be proper, the present rejection is still believed improper because the cited references, whether taken singly or in combination, fail to teach or suggest a

"configuration control card [which] is configured for removal and replacement..." as recited in Claims 1, 14 and 19.

In rejecting Claims 1, 14 and 19, the Examiner contends that the above-identified element is essentially disclosed by Hsieh (col. 6, lines 18-21), except for the fact that Hsieh does not disclose that the configuration control (i.e., the ROM) is incorporated on a card. Nonetheless, the Examiner takes Official Notice "that it is old and well known in the art to incorporate a digital device (ROM) on a printed circuit board" as evidenced by Notarianni at col. 21, lines 18-19 (see pgs. 3-4 of the Final Office Action mailed May 7, 2009). Applicants respectfully disagree that the above-identified element is shown by the cited references.

Applicants' specification explains that conventional methods of upgrading a router have been implemented by replacing one or more of the main components of a router, and that the conventional methods of replacing router components is costly (Present specification: pg. 1, lines 18-21). For example, conventional methods of upgrading a router may include physically dislodging a componenent from a printed circuit board and replacing the dislodged component. Thus, it would be desirable and highly advantageous to have a broadcast router capable of having its functionality readily changed so as to provide different configurations or levels of operational sophistication (Present specification: pg. 1, lines 22-25). In order to address the need for providing a router which can be readily changed, the present invention teaches a router that includes a configuration control card which is *"configured for removal and replacement"*. By providing a configuration control card which is configured for removal and replacement, the present invention can provide routers with different configurations or levels of operational sophistication in a cost efficient and reliable manner while using common hardware

arrangements (Present specification: pg. 4, lines 11-14). Moreover, a router can be upgraded without using conventional methods which require removal and replacement of the components on a circuit board.

The passage cited in Hsieh does not disclose a configuration control card, or a ROM for that matter, which is "configured for removal and replacement". Although Hsieh explains that replacing the ROM in FIG. 2 can change the signal routing pattern for the crosspoint switch on the FPID (Hsieh: col. 6, lines 18-21), this passage does not suggest in anyway that the ROM is "configured for removal and replacement" as recited in the present claims. To the contrary, the cited passage relates to the problem (described at pg. 1, lines 18-21 of the present specification) associated with conventional methods of upgrading a router, which involve the costly and risky process of physically removing a component from a circuit board. In other words, although Hsieh explains that the ROM therein can be replaced with another ROM to change the signal routing pattern for the FPID, Hsieh does not suggest that either the ROM, or the motherboard on which the ROM is situated, is designed or configured to be removed and replaced. Rather, this reference merely explains that the ROM therein can be replaced using conventional methods. Therefore, since neither Hsieh, nor any of the other cited references, teach or suggest a *"configuration control card [which] is configured for removal and replacement..."*, the cited combination fails to render obvious Claims 1, 14 and 19.

Accordingly, for at least the reasons discussed above, the combined teachings of cited references fail to render Claims 1, 14 and 19 obvious under 35 U.S.C. § 103(a). Therefore, Claims 1, 14 and 19 are believed to be non-obvious and patentably distinct over the cited references.

Moreover, "[i]f an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Remaining Claims 2-11, 13, 15-17 and 20-25 depend from either Claim 1, 14 or 19, or a claim which itself is dependent from one of these claims. Accordingly, all remaining claims are patentably distinct over the cited references for at least the reasons set forth above. Therefore, reconsideration of this rejection is respectfully requested.

C. Whether Claims 12, 18 and 25 are Rendered Obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al., U.S. Patent No. 4,764,959 to Watanabe et al., and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. and U.S. Patent No. 6,539,534 to Bennett

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its*

limitations - with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 12, 18 and 25 as being obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al., U.S. Patent No. 4,764,959 to Watanabe et al., and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. and U.S. Patent No. 6,539,534 to Bennett. The Examiner contends that the cited combination shows all of the elements recited in Claims 12, 18 and 25.

Cornet relates to a system for reassembling packets in a network element (Cornet: Title; Abstrat). When a traffic flow is received by the network element, the ingress cards segments the traffic flow into internal cells for switching or routing in the network element (Cornet: col. 4, lines 45-47). The ingress cards also add an additional internal header to each cell to provide addressing information for each cell as it traverses the network element (Cornet: col. 5, lines 9-14). The traffic flow is then sent from the ingress card to the fabric component which uses the internal header information to control the routing of the traffic flow in the network element (Cornet: col. 5, lines 23-29). Based on the internal header information, the traffic flow is sent to one of the egress cards which then reassembles the internal cells and prepares the traffic for transmission (Cornet: col. 5, lines 43-61).

Hsieh discloses a backplane for interconnecting printed circuit boards (Hsieh: col. 1, lines

17-20). The backplane includes a motherboard which includes a plurality of slots for mounting printed circuit boards (Hsieh: col. 5, lines 9-16), at least one field programmable interconnect device (FPID) for routing signals between the printed circuit boards (Hsieh: col. 5, lines 16-18), and a read-only memory (ROM) which stores programming data for controlling the FPID (Hsieh: col. 5, lines 63-65). On system startup, the programming data is read out of the ROM and transmitted to the control interface circuit in the FPID, which then uses the programming data to route signals in a manner indicated by the programming data (Hsieh: col. 5, line 63 – col. 6, line 7). Moreover, Hsieh explains that the manner in which signals are routed can be changed by replacing or reprogramming the ROM, such that the programming data stored therein indicates a different signal routing pattern (Hsieh: col. 6, lines 18-21).

Watanabe discloses a single-chip microcomputer with an encryptable function on program memory which can encrypts the contents of the memory for protection of secrecy when the programs stored in read only memory (ROM) are read to the outside (Wantanabe: Abstract; Title). An encrypting code generator is provided to execute the encrypting and the encrypting code is stored in an instruction decoder, which decodes the encrypting code and sends it to the arithmetic and logic unit (ALU) (Watanabe: col. 3, lines 4-11; Abstract). The ALU encrypts the data from the ROM based on the encrypting code from the decoder, and outputs the result to the outside on an input/output port (Watanabe: col. 3, lines 4-11; Abstract).

It will be shown herein below that Claims 12, 18 and 25 are not shown in the cited taught or suggested by the cited references, and that Claims 12, 18 and 25 should be alslowed.

C1. Claims 12, 18 and 25

Initially, it is respectfully pointed out to that Claim 12 directly or indirectly depends from independent Claim 1, Claim 18 directly or indirectly depends from Claim 14, and Claim 25 directly or indirectly depends from independent Claim 19. Thus, Claim 12 includes all the elements of Claim 1, Claim 18 includes all the elements of Claim 14, and Claim 25 includes all the elements of Claim 19.

As mentioned above, the Examiner rejected Claims 12, 18 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Cornet, Hsieh, Watanabe, and what is old and well known in the art as evidenced by Notarianni and Bennett. For at least the reasons discussed in Section C1 of this document, Claims 1, 14 and 19 are believed to be patentable over the combination of the Cornet, Hsieh, Notarianni and Bennett. Claims 12, 18 and 25 depend either from Claims 1, 14 and 19, either directly or indirectly, and contain all of the elements set forth in the claims from which they depend. Moreover, since Watanabe fails to cure the deficiencies of the cited references as discussed above in Section B1, the combination of Cornet, Hsieh, Wantanabe, Notarianni and Bennett does not anticipate or render Claims 12, 18 and 25 obvious.

Wantanabe relates to a single-chip microcomputer with an encryptable function that can encrypt the contents of a memory for protection of secrecy when the programs stored in a read only memory (ROM) are read to the outside. It appears that Wantanabe was cited by the Examiner for the limited purpose of disclosing the encryption of configuration information. However, assuming, arguendo, that Watanabe does disclose such, this reference still fails to cure the above-discussed deficiencies of other cited references discussed in section B1 of this document. Therefore, for at least the reasons set forth above, Claims 12, 18 and 25 are believed to be patentably distinct and non-obvious over the cited references. Thus, reconsideration of this

rejection is respectfully requested.

D. Conclusion

At least the above-identified limitations of the pending claims are not disclosed or suggested by the teachings of the cited references. Accordingly, it is respectfully requested that the Board reverse the rejections of Claims 1-25 under 35 U.S.C. § 103(a).

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Respectfully submitted,
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PATENT
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8. CLAIMS APPENDIX

1. (Previously Presented) A broadcast router, comprising:

a plurality of input cards for inputting data into the broadcast router;

a plurality of output cards for outputting the data from the broadcast router;

at least one programmable device; and

a configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions,

wherein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router.

2. (Original) The broadcast router of claim 1, wherein the broadcast router employs switch points, the data received by the plurality of input cards includes input streams, and the one or more functionalities comprise at least one of fading at the switch points, receiving alternate input streams, remote error monitoring, signal mixing, at least one of altering and enabling Digital Signal Processor (DSP) functions, metering, and modifying router size.

3. (Previously Presented) The broadcast router of claim 1, wherein the stored configuration information comprises at least one selected from a group consisting of:

configuration data for Field Programmable Gate Arrays (FPGAs),

checksums and codes to enable or disable logic in at least one of the FPGAs or other

custom Integrated Circuits (ICs),

checksums and codes that enable or disable different functionality of CPU-based state machines within the broadcast router, and

executable code that enables or disables different functionality of CPU-based systems within the broadcast router.

4. (Original) The broadcast router of claim 1, wherein the difference involves at least one of adding at least one new function and removing at least one existing function.

5. (Original) The broadcast router of claim 1, wherein the at least one programmable device is disposed on at least one of the plurality of input cards and the plurality of output cards.

6. (Original) The broadcast router of claim 1, further comprising:

an expansion card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router; and

a matrix card for receiving the data from the plurality of input cards for subsequent routing within the broadcast router.

7. (Original) The broadcast router of claim 6, wherein at least one of the expansion card and the matrix card provides support protocols to change input/output assignments of the data.

8. (Previously Presented) The broadcast router of claim 1, further comprising:

a combined expansion/matrix card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router and for receiving the data from the plurality of input cards for subsequent routing within the broadcast router.

9. (Original) The broadcast router of claim 6, wherein the at least one programmable device is disposed on at least one of the expansion card and the matrix card.

10. (Original) The broadcast router of claim 1, further comprising a control card for providing support protocols to change input/output assignments of the data.

11. (Original) The broadcast router of claim 6, wherein the at least one programmable device is disposed on at least the control card.

12. (Original) The broadcast router of claim 1, wherein at least a portion of at least one of the configuration information and the other configuration information is encrypted.

13. (Original) The broadcast router of claim 1, wherein the configuration control card comprises a user-input device for receiving a user input for initiating a configuration of the at least one programmable device.

14. (Previously Presented) A method for changing a functionality of a broadcast router, the broadcast router at least having a plurality of input cards, a plurality of outputs cards, and at

least one programmable device, the method comprising the step of:

providing a replaceable configuration control card for insertion into the broadcast router and for storing configuration information for configuring the at least one programmable device to perform a first set of functions,

wherein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router.

15. (Original) The method of claim 14, wherein the broadcast router employs switch points, the data received by the plurality of input cards includes input streams, and the one or more functionalities comprise at least one of fading at the switch points, receiving alternate input streams, remote error monitoring, signal mixing, at least one of altering and enabling Digital Signal Processor (DSP) functions, metering, and modifying router size.

16. (Previously Presented) The method of claim 14, wherein the configuration information comprises at least one selected from a group consisting of:

configuration data for Field Programmable Gate Arrays (FPGAs),

checksums and codes to enable or disable logic in at least one of the FPGAs or other custom Integrated Circuits (ICs),

checksums and codes that enable or disable different functionality of CPU-based state machines within the broadcast router, and

executable code that enables or disables different functionality of CPU-based systems within the broadcast router.

17. (Original) The method of claim 14, wherein the difference involves at least one of adding at least one new function and removing at least one existing function.

18. (Original) The method of claim 14, wherein at least a portion of at least one of the configuration information and the other configuration information is encrypted.

19. (Previously Presented) A broadcast router, comprising:

a plurality of input cards for receiving data into the broadcast router;

an expansion card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router;

a matrix card for receiving the data from the plurality of input cards for subsequent routing within the broadcast router;

a plurality of output cards for receiving the data from the matrix card and for outputting the data from the broadcast router;

at least one programmable device; and

a configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions,

wherein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for

configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router.

20. (Original) The broadcast router of claim 19, wherein the broadcast router employs switch points, the data received by the plurality of input cards includes input streams, and the one or more functionalities comprise at least one of fading at the switch points, receiving alternate input streams, remote error monitoring, signal mixing, at least one of altering and enabling Digital Signal Processor (DSP) functions, metering, and modifying router size.

21. (Previously Presented) The broadcast router of claim 19, wherein the configuration information comprises at least one selected from a group consisting of:

configuration data for Field Programmable Gate Arrays (FPGAs),

a checksums and codes to enable or disable logic in at least one of the FPGAs or other custom Integrated Circuits (ICs),

checksums and codes that enable or disable different functionality of CPU-based state machines within the broadcast router, and

executable code that enables or disables different functionality of CPU-based systems within the broadcast router.

22. (Original) The broadcast router of claim 19, wherein the at least one programmable device is disposed on at least one of the plurality of input cards, the expansion card, the matrix card, and the plurality of output cards.

23. (Original) The broadcast router of claim 19, further comprising a control card for providing support protocols to change input/output assignments of the data.

24. (Original) The broadcast router of claim 23, wherein the at least one programmable device is disposed on at least the control card.

25. (Original) The broadcast router of claim 19, wherein at least a portion of at least one of the configuration information and the other configuration information is encrypted.

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9. RELATED EVIDENCE APPENDIX

None.

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10. RELATED PROCEEDINGS APPENDIX

None.